

What is claimed is:

1. A device comprising:

an output for providing at least a first output signal at a first frequency band and a distinct second output signal at a distinct second frequency band,

a first signal channel connected between a first waveguide port and the output, the first waveguide port providing a first input signal upon which the first output signal is based, and,

a distinct second signal channel connected between a second waveguide port and the output, the second waveguide port providing a second input signal upon which the second output signal is based,

where the first signal channel includes a notch filter centered substantially at about the distinct second frequency band, and the second signal channel includes a notch filter centered substantially at about the first frequency band.

2. The device of claim 1, where:

the first signal channel includes a first mixer, the first mixer coupled to a first local oscillator and the first input signal, and,

the distinct second signal channel includes a distinct second mixer, the distinct second mixer coupled to a distinct second local oscillator and the distinct second input signal.

3. The device of claim 1, further comprising an impedance transformer coupled to the output.

4. The device of claim 1, where the first output signal includes a maximum peak signal at a frequency in a range substantially between about 950 MHz to about 1450 MHz, and the distinct second output signal includes a maximum peak signal at a frequency in a range substantially between about 1525 MHz to about 2025 MHz.

5. The device of claim 1, wherein at least one of the first waveguide port and the second waveguide port are rectangular.

6. The device of claim 1, wherein the output comprises a coaxial cable.
7. The device of claim 1, where the first input signal represents a right-hand polarized signal, and the distinct second input signal represents a left-hand polarized signal.
8. The device of claim 1, where the first input signal represents a left-hand polarized signal, and the distinct second input signal represents a right-hand polarized signal.
9. The device of claim 2, where the first signal channel includes at least one first low pass filter coupled to the output of the first mixer, and where the distinct second signal channel includes at least one second low pass filter coupled to the output of the distinct second mixer.
10. The device of claim 9, further comprising at least one IF amplifier coupled to said at least one first low pass filter, and at least one second IF amplifier coupled to said at least one second low pass filter.
11. The device of claim 2, further comprising a first band-pass filter coupled between the first input signal and the first mixer, and a second band-pass filter coupled between the distinct second input signal and the distinct second mixer.
12. The device of claim 2, further comprising a first band-pass filter coupled between the first local oscillator and the first mixer, and a second band-pass filter coupled between the distinct second local oscillator and the distinct second mixer.
13. The device of claim 1, where the first waveguide port and the distinct second waveguide port are coupled to a housing, the housing comprising chamfered edges.
14. The device of claim 1, where the first waveguide port includes a first waveguide port probe, said first waveguide port probe positioned to be a distance from an end of a waveguide of approximately one-quarter wavelength of the first input frequency.
15. The device of claim 1, where the second waveguide port includes a second waveguide port probe, said second waveguide port probe positioned to be a distance from an end of a waveguide of approximately one-quarter wavelength of the distinct second input frequency.

16. The device of claim 1, where the first output signal is approximately within a range of about 950 MHz to about 1450 MHz, and the distinct second output signal is approximately within a range of about 1525 MHz to about 2025 MHz.
17. The device of claim 1, where the distinct second output signal is approximately within a range of about 950 MHz to about 1450 MHz, and the first output signal is approximately within a range of about 1525 MHz to about 2025 MHz.
18. The device of claim 1, where the first input signal includes an approximate frequency range of about 12.2 GHz to about 12.7 GHz.
19. The device of claim 1, where the distinct second input signal includes an approximate frequency range of about 12.2 GHz to about 12.7 GHz.
20. The device of claim 2, where the first local oscillator is tuned to a frequency of about 10.675 GHz and the distinct second local oscillator is tuned to a frequency of about 11.250 GHz.
21. The device of claim 2, where the distinct second local oscillator is tuned to a frequency of about 10.675 GHz and the first local oscillator is tuned to a frequency of about 11.250 GHz.
22. The device of claim 1, where the first output signal is an Intermediate Frequency (IF) of the first input signal.
23. The device of claim 1, where the distinct second output signal is an Intermediate Frequency (IF) of the distinct second input signal.